



## General

### Guideline Title

Chronic pain disorder medical treatment guidelines.

### Bibliographic Source(s)

Colorado Division of Workers' Compensation. Chronic pain disorder medical treatment guidelines. Denver (CO): Colorado Division of Workers' Compensation; 2011 Dec 27. 110 p.

### Guideline Status

This is the current release of the guideline.

## Regulatory Alert

### FDA Warning/Regulatory Alert

Note from the National Guideline Clearinghouse: This guideline references a drug(s) for which important revised regulatory and/or warning information has been released.

- [March 22, 2016 – Opioid pain medicines](#) : The U.S. Food and Drug Administration (FDA) is warning about several safety issues with the entire class of opioid pain medicines. These safety risks are potentially harmful interactions with numerous other medications, problems with the adrenal glands, and decreased sex hormone levels. They are requiring changes to the labels of all opioid drugs to warn about these risks.

## Recommendations

### Major Recommendations

Note from the National Guideline Clearinghouse (NGC): This summary includes the treatment recommendations of the guideline. See the original guideline document for additional information on initial evaluation and diagnostic procedures for patients with chronic pain disorders and for further descriptions of the therapies discussed below.

#### Therapeutic Procedures—Non-operative

Non-operative therapeutic rehabilitation is applied to patients with chronic and complex problems of de-conditioning and functional disability.

Treatment modalities may be utilized sequentially or concomitantly depending on chronicity and complexity of the problem, and treatment plans should always be based on a diagnosis utilizing appropriate diagnostic procedures.

Before initiation of any therapeutic procedure, the authorized treating physician, employer and insurer must consider these important issues in the care of the injured worker:

- a. Patients undergoing therapeutic procedure(s) should be released or returned to modified or restricted duty during their rehabilitation at the earliest appropriate time. Refer to "Return-to-Work" below for detailed information.
- b. Reassessment of the patient's status in terms of functional improvement should be documented after each treatment. If patients are not responding within the recommended time periods, alternative treatment interventions, further diagnostic studies or consultations should be pursued. Continued treatment should be monitored using objective measures such as:
  - Return-to-work or maintaining work status
  - Fewer restrictions at work or performing activities of daily living (ADL)
  - Decrease in usage of medications related to the work injury and
  - Measurable functional gains, such as increased range-of-motion or documented increase in strength
- c. Clinicians should provide and document education to the patient. No treatment plan is complete without addressing issues of individual and/or group patient education as a means of facilitating self-management of symptoms.
- d. Psychological or psychosocial screening should be performed on all chronic pain patients.

### Acupuncture

Acupuncture is recommended for chronic pain patients who are trying to increase function and/or decrease medication usage and have an expressed interest in this modality. Acupuncture is not the same procedure as dry needling for coding purposes; however, some acupuncturists may use acupuncture treatment for myofascial trigger points. Dry needling is performed specifically on myofascial trigger points. Refer to "Trigger Point Injections and Dry Needling Treatment" below.

Credentialed practitioners with experience in evaluation and treatment of chronic pain patients must perform acupuncture evaluations. The exact mode of action is only partially understood. Western medicine studies suggest that acupuncture stimulates the nervous system at the level of the brain, promotes deep relaxation, and affects the release of neurotransmitters. Acupuncture is commonly used as an alternative or in addition to traditional Western pharmaceuticals. It may be used when pain medication is reduced or not tolerated; as an adjunct to physical rehabilitation or surgical intervention; and/or as part of multidisciplinary treatment to hasten the return of functional activity. Acupuncture must be performed by practitioners with the appropriate credentials in accordance with state and other applicable regulations. Therefore, if not otherwise within their professional scope of practice and licensure, those performing acupuncture must have the appropriate credentials, such as licensed acupuncturist (L.Ac.), registered acupuncturist (R.Ac.), or diplomate in acupuncture (Dipl. Ac.).

### *Acupuncture*

Indications include joint pain, joint stiffness, soft tissue pain and inflammation, paresthesia, post-surgical pain relief, muscle spasm, and scar tissue pain.

### *Acupuncture with Electrical Stimulation*

It is indicated to treat chronic pain conditions, radiating pain along a nerve pathway, muscle spasm, inflammation, scar tissue pain, and pain located in multiple sites.

### *Other Acupuncture Modalities*

Acupuncture treatment is based on individual patient needs and therefore treatment may include a combination of procedures to enhance treatment effect. Other procedures may include the use of heat, soft tissue manipulation/massage, and exercise. Refer to "Therapy—Active" and "Therapy—Passive" below for a description of these adjunctive acupuncture modalities and time frames.

### *Total Time Frames for Acupuncture and Acupuncture with Electrical Stimulation*

Refer to the original guideline document for time to produce effect, frequency, and optimum and maximum duration of treatments. Time frames are not meant to be applied to each of the above sections separately. The time frames are to be applied to all acupuncture treatments regardless of the type or combination of therapies being provided.

Any of the above acupuncture treatments may extend longer if objective functional gains can be documented or when symptomatic benefits facilitate progression in the patient's treatment program. Treatment beyond 15 treatments must be documented with respect to need and ability to

facilitate positive symptomatic and functional gains. Such care should be re-evaluated and documented with each series of treatments.

## Biofeedback

Indications for biofeedback include individuals who are suffering from musculoskeletal injury where muscle dysfunction or other physiological indicators of excessive or prolonged stress response affects and/or delays recovery. Other applications include training to improve self-management of pain, anxiety, panic, anger or emotional distress, opioid withdrawal, insomnia/sleep disturbance, and other central and autonomic nervous system imbalances. Biofeedback is often utilized for relaxation training. Mental health professionals may also utilize it as a component of psychotherapy, where biofeedback and other behavioral techniques are integrated with psychotherapeutic interventions. Biofeedback is often used in conjunction with physical therapy or medical treatment.

Recognized types of biofeedback include the following:

- a. Electromyogram (EMG): Used for self-management of pain and stress reactions involving muscle tension.
- b. Skin Temperature: Used for self-management of pain and stress reactions, especially vascular headaches.
- c. Respiration Feedback (RFB): Used for self-management of pain and stress reactions via breathing control.
- d. Respiratory Sinus Arrhythmia (RSA): Used for self-management of pain and stress reactions via synchronous control of heart rate and respiration.
- e. Heart Rate Variability (HRV): Used for self-management of stress via managing cardiac reactivity.
- f. Electrodermal Response (EDR): Used for self-management of stress involving palmar sweating or galvanic skin response.
- g. Electroencephalograph (EEG, QEEG): Used for self-management of various psychological states by controlling brainwaves.

The goal in biofeedback treatment is normalizing the physiology to the pre-injury status to the extent possible and involves transfer of learned skills to the workplace and daily life. Candidates for biofeedback therapy or training should be motivated to learn and practice biofeedback and self-regulation techniques. In the course of biofeedback treatment, patient stressors are discussed and self-management strategies are devised. If the patient has not been previously evaluated, a psychological evaluation should be performed prior to beginning biofeedback treatment for chronic pain. The psychological evaluation may reveal cognitive difficulties, belief system conflicts, somatic delusions, secondary gain issues, hypochondriasis, and possible biases in patient self-reports, which can affect biofeedback. Home practice of skills is often helpful for mastery and may be facilitated by the use of home training tapes.

Psychologists or psychiatrists, who provide psycho-physiological therapy which integrates biofeedback with psychotherapy, should be either Biofeedback Certification International Alliance (BCIA) certified or practicing within the scope of their training. All non-licensed health care providers of biofeedback for chronic pain patients must be BCIA certified and shall have their biofeedback treatment plan approved by the authorized treating psychologist or psychiatrist. Biofeedback treatment must be done in conjunction with the patient's psychosocial intervention. Biofeedback may also be provided by health care providers, who follow a set treatment and educational protocol. Such treatment may utilize standardized material or relaxation tapes.

Refer to the original guideline document for time to produce effect, frequency, and optimum and maximum duration of treatments.

## Complementary Alternative Medicine (CAM)

While CAM may be performed by a myriad of both licensed and non-licensed health practitioners with training in one or more forms of therapy, credentialed practitioners should be used when available or applicable.

Although CAM practices are diverse and too numerous to list, they can be generally classified into five domains: alternative medical systems, mind-body interventions, biological-based practices, body-based therapy, energy-based practices.

Methods used to evaluate chronic pain patients for participation in CAM will differ with various approaches and with the training and experience of individual practitioners. A patient may be referred for CAM therapy when the patient's cultural background, religious beliefs, or personal concepts of health suggest that an unconventional medical approach might assist in the patient's recovery or when the physician's experience and clinical judgment support a CAM approach. The patient must demonstrate a high degree of motivation to return to work and improve their functional activity level while participating in therapy. Other more traditional conservative treatments should generally be attempted before referral to CAM. Treatment with CAM requires prior authorization.

Refer to the original guideline document for time to produce effect, frequency, and optimum and maximum duration of treatments.

## Disturbances of Sleep

Disturbances of sleep are common in chronic pain. Although primary insomnia may accompany pain as an independent co-morbid condition, it

more commonly occurs secondary to the pain condition itself. Exacerbations of pain often are accompanied by exacerbations of insomnia; the reverse can also occur.

Sleep apnea may also occur as a primary diagnosis or be caused or exacerbated opioid and hypnotic use. This should be investigated diagnostically (refer to "Medications and Medical Management" in the original guideline document).

Many chronic pain patients develop behavioral habits that exacerbate and maintain sleep disturbances. Excessive time in bed, irregular sleep routine, napping, low activity, and worrying in bed are all maladaptive responses that can arise in the absence of any psychopathology. Relaxation training such as progressive relaxation, biofeedback, mindfulness meditation, or imagery training and other forms of cognitive therapy can reduce dysfunctional beliefs and attitudes about sleep.

There is some evidence that behavioral modification, such as patient education and group or individual counseling with cognitive behavioral therapy can be effective in reversing the effects of insomnia. Cognitive and behavioral interventions should be undertaken before prescribing medication solely for insomnia. Behavioral modifications (see the original guideline document for list) are easily implemented.

Behavioral modifications should be trialed before the use of hypnotics. Reinforcing these behaviors may also decrease hypnotic use and overall medication costs. There is some evidence that group cognitive behavioral therapy reduces the severity and daytime consequences of insomnia for at least six months. Melatonin or ramelteon a longer acting melatonin agonist may be preferred by some patients and is a reasonable alternative to sedative hypnotics. There is some evidence that ramelteon, while producing a small amount of reduction in sleep latency, does not appreciably increase total sleep time or daytime function.

### **Injections—Therapeutic**

When considering the use of injections in chronic pain management, the treating physician must carefully consider the inherent risks and benefits. First, it is understood that these injections are seldom meant to be "curative" and when used for therapeutic purposes they are employed in conjunction with other treatment modalities for maximum benefit.

Second, education of the patient should include the proposed goals of the injections, expected gains, risks or complications, and alternative treatment.

Finally, reassessment of the patient's status in terms of functional improvement should be documented after each injection. Any continued use of injections should be monitored using objective measures such as:

- a. Return-to-work or maintaining work status
- b. Fewer restrictions at work or performing activities of daily living
- c. Decrease in usage of medications related to the work injury
- d. Measurable functional gains, such as increased range-of-motion or documented increase in strength

Visual analog scales (VAS) provide important subjective data but cannot be used to measure function.

The physician must be aware of the possible placebo effect as well as the long-term effects of injections related to the patient's physical and mental status. Strict adherence to contraindications, both absolute and relative, may prevent potential complications. Subjecting the patient to potential risks, i.e., needle trauma, infection, nerve injury, or systemic effects of local anesthetics and corticosteroids, must be considered before the patient consents to such procedures, especially for repeat procedures.

### ***Therapeutic Spinal Injections***

Description – The following injections are considered to be reasonable treatment for patients with chronic pain. Other injections not listed may be beneficial. Therapeutic spinal injections may be used after initial conservative treatments, such as physical and occupational therapy, medication, manual therapy, exercise, acupuncture, etc., have been undertaken. Therapeutic injections should be used only after imaging studies and diagnostic injections have established pathology. Injections are invasive procedures that can cause serious complications; thus clinical indications and contraindications should be closely adhered to. The purpose of spinal injections is to facilitate active therapy by providing short-term relief through reduction of pain and inflammation. All patients should continue appropriate exercise with functionally directed rehabilitation. Active treatment, which patients should have had prior to injections is essential and will frequently require a repeat of the sessions previously ordered (refer to "Therapy—Active" below). Injections by themselves are not likely to provide long-term relief. Rather, active rehabilitation with modified work achieves long-term relief by increasing active range of motion (ROM), strength, and stability. If the first injection does not provide a diagnostic response with temporary and sustained pain relief substantiated by accepted pain scales (i.e., 80% pain reduction), and improvement in function, similar injections should not be repeated. Cervical injections are invasive procedures that can cause catastrophic complications.

Considerations – For all spinal injections (excluding trigger point, botulinum toxin, and occipital or peripheral nerve blocks) multi-planar imaging during procedures is required to document technique and needle placement, and should be performed by a physician experienced in the procedure. Permanent images are required to verify needle placement. The subspecialty disciplines of the physicians may be varied, including, but not limited to: anesthesiology, radiology, surgery, or physiatry. The physician who performs injections for low back pain should document hands on training through workshops of the type offered by organizations such as the International Spine Intervention Society (ISIS) and/or completed fellowship training with interventional training. The physician who performs injections for cervical pain should have completed fellowship training in pain medicine with interventional training, or its equivalent. In addition, physicians who perform spinal injections should obtain fluoroscopy training and must also have appropriate training in radiation safety, usually overseen by a radiation safety officer.

Complications – General complications of these spinal injections may include transient neurapraxia, local pain, nerve injury, infection, headache, urinary retention and vasovagal effects; epidural hematoma, permanent neurologic damage, dural perforation and cerebral spinal fluid (CSF) leakage, and/or spinal meningeal abscess may also occur. Permanent paresis, anaphylaxis and arachnoiditis have been rarely reported with the use of epidural steroids. With steroid injections, there may be a dose-dependent suppression of the hypothalamic-pituitary adrenal axis lasting between one and three months. For cervical injections, severe complications are remote but can include spinal cord damage, quadriplegia, and/or death.

Contraindications – Absolute contraindications of therapeutic injections include: (a) bacterial infection – systemic or localized to region of injection, (b) bleeding diatheses, (c) hematological conditions, and (d) possible pregnancy.

Relative Contraindications – Relative contraindications of these injections may include: (a) allergy to contrast or shellfish, (b) poorly controlled diabetes mellitus and/or hypertension.

Drugs affecting coagulation, such as aspirin, NSAIDs and other anti-platelets or anti-coagulants require restriction from use. Decisions regarding the number of restricted days should be made in consultation with the prescribing physician and other knowledgeable experts.

#### Epidural Steroid Spinal Injections (ESI)

Needle Placement – Multi-planar fluoroscopic imaging is required for all transforaminal epidural steroid injections. Injection of contrast dye is necessary to verify needle placement and flow of medication into the epidural space. Permanent images are required to verify needle placement.

Indications for Acute Exacerbations – There is some evidence that epidural steroid injections are effective for patients with radicular pain or radiculopathy (sensory or motor loss in a specific dermatome or myotome). They are not recommended for chronic axial pain. There is some evidence that ESI in the low back are not effective for spinal stenosis without radicular findings. Additionally, there is some evidence in studies of the lumbar spine that patients who smoke or who have pain unaffected by rest or activity are less likely to have a successful outcome from ESIs.

Indications for Chronic Radicular Pain – Injections for chronic radiculopathy are rarely appropriate.

Generally, epidural injections should be limited to acute exacerbations of radicular pain at the same location as the work-related injury. There may be a small sub-population of patients with chronic radiculopathy who receive benefit from an injection. Repeated injections are frequently unnecessary and should only be done when documented functional improvement occurs, which may include a return to baseline function or ability to continue working. A positive result would include a return to baseline function, return to increased work duties, and a measurable improvement in physical activity goals including return to baseline after an exacerbation and achieved for at least 3 months.

Refer to the original guideline document for time to produce effect, frequency, and optimum and maximum duration of treatments.

#### Zygapophyseal (Facet) Injections

Description – A generally accepted intra-articular or pericapsular injection of local anesthetic and corticosteroid. Medial branch nerve blocks may be diagnostic only. There is conflicting evidence to support a long-term therapeutic effect using facet injections.

Zygapophyseal injections have almost no role in acute and subacute low back and thus are only permitted in chronic low back pain if there is indication in low back pain/cervical guideline that the patient meets the criteria for a diagnostic injection.

Patients should be reassessed after each injection session for an 80% improvement in pain (as measured by accepted pain scales) and evidence of functional improvement for 6 months. A positive result would include a return to baseline function, return to increased work duties, and measurable improvement in physical activity goals including return to baseline after an exacerbation.

Refer to the original guideline document for time to produce effect and optimum and maximum duration of treatments.

#### Sacroiliac (SI) Joint Injections

Description – This is a generally accepted injection of local anesthetic in an intra-articular fashion into the sacroiliac joint under radiographic

guidance. May include the use of corticosteroids. Long-term therapeutic effect has not yet been established.

SI joint injections have almost no role in acute and subacute low back and thus are only permitted in chronic low back pain if there is strong evidence per the indications in low back pain guideline that the patient meets the criteria for a diagnostic injection.

A successful injection should document relief from previously painful maneuvers (e.g., Patrick's test) on post-injection physical exam. Patients should be reassessed after each injection session for an 80% improvement in pain (as measured by accepted pain scales) and evidence of functional improvement for 6 months. A positive result would include a return to base line function, return to increased work duties, and a measurable improvement in physical activity goals including return to baseline after an exacerbation.

Refer to the original guideline document for time to produce effect and optimum and maximum duration of treatments.

#### Intradiscal Steroid Therapy

Intradiscal steroid therapy consists of injection of a steroid preparation into the intervertebral disc under fluoroscopic guidance at the time of discography. There is good evidence that it is not effective in the treatment of suspected discogenic back pain and its use is not recommended.

#### *Radiofrequency (RF) Medial Branch Neurotomy/Facet Rhizotomy*

Description – This is a procedure designed to denervate the facet joint by ablating the corresponding sensory medial branches. Continuous percutaneous radiofrequency is the method generally used.

RF medial branch neurotomy is the procedure of choice over alcohol, phenol, or cryoablation. Precise positioning of the probe using fluoroscopic guidance is required since the maximum effective diameter of the device is a 5x8 millimeter oval. Permanent images should be recorded to verify placement of the device.

Indications – Those patients with proven, significant, facetogenic pain. A minority of low back patients would be expected to qualify for this procedure. This procedure is not recommended for patients with multiple pain generators or involvement of more than 3 levels of medial branch nerves.

Individuals should have met all of the following indications: Pain of well-documented facet origin, typically with extension and/or rotation unresponsive to active and/or passive therapy, unresponsive to manual therapy, and in which a psychosocial screening has been performed (e.g., pain diagram, Waddell's signs, thorough psychosocial history, screening questionnaire). It is generally recommended that this procedure not be performed until three months of active therapy and manual therapy have been completed. All patients should continue appropriate exercise with functionally directed rehabilitation. Active treatment, which patients will have had prior to the procedure, is essential and will frequently require a repeat of the sessions previously ordered (refer to "Therapy—Active" below.)

All patients should have a successful response to a diagnostic medial nerve branch block and a separate comparative block. ISIS suggests controlled blocks using either placebo or anesthetics with varying lengths of activity (i.e., bupivacaine longer than lidocaine). To be a positive diagnostic block the patient should report a reduction of pain of 80% or greater from baseline for the length of time appropriate for the local anesthetic used. In almost all cases this will mean a reduction of pain to 1 or 2 on the VAS 10-point scale correlated with functional improvement. The patient should also identify activities of daily living (which may include measurements of range-of-motion) that are impeded by their pain and can be observed to document functional improvement in the clinical setting. Ideally, these activities should be assessed throughout the observation period for function. The observer should not be the physician who performed the procedure. It is suggested that this be recorded on a form similar to ISIS recommendations.

A separate comparative block on a different date should be performed to confirm the level of involvement. A comparative block uses anesthetics with varying lengths of activity.

Complications – Bleeding, infection, or neural injury. The clinician must be aware of the risk of developing a localized neuritis, or rarely, a deafferentation centralized pain syndrome as a complication of this and other neuroablative procedures.

Post-Procedure Therapy – Active therapy. Implementation of a gentle aerobic reconditioning program (e.g., walking) and back education within the first post-procedure week, barring complications. Instruction and participation in a long-term home-based program of ROM, core strengthening, postural or neuromuscular re-education, endurance, and stability exercises should be accomplished over a period of four to ten visits post-procedure.

Requirements for Repeat RF Medial Branch Neurotomy (or additional-level RF neurotomies) – In some cases pain may recur. Successful RF neurotomy usually provides from 6 to 18 months of relief.

Before a repeat RF neurotomy is done, a confirmatory medial branch injection should be performed if the patient's pain pattern presents differently than the initial evaluation. The long-term effects of repeat rhizotomies, especially on younger patients are unknown. There is a possibility that repeated denervation could result in premature degenerative changes. In addition the patient should always reconsider all of the possible permanent complications before consenting to a repeat procedure. There are no studies addressing the total number of RF neurotomies that should be done for a patient. The patient should document 6 to 18 months minimum improvement.

In occasional patients, additional levels of RF neurotomy may be necessary. The initial indications including repeat blocks and limitations apply.

Refer to the original guideline document for time to produce effect and optimum and maximum duration of treatments.

#### *Dorsal Nerve Root Ganglion Radiofrequency Ablation*

Due to the combination of possible adverse side effects, time limited effectiveness, and mixed study results, this therapy is not recommended.

#### *Trigger Point Injections and Dry Needling Treatment*

Description – Trigger point injections are a generally accepted treatment. Trigger point treatment can consist of dry needling or injection of local anesthetic, with or without corticosteroid, into highly localized, extremely sensitive bands of skeletal muscle fibers that produce local and referred pain when activated.

There is no indication for conscious sedation for patients receiving trigger point injections. The patient must be alert to help identify the site of the injection.

Indications – Trigger point injections may be used to relieve myofascial pain and facilitate active therapy and stretching of the affected areas. They are to be used as an adjunctive treatment in combination with other active treatment modalities. Trigger point injections should be utilized primarily for the purpose of facilitating functional progress. Patients should continue in an aggressive aerobic and stretching therapeutic exercise program as tolerated throughout the time period they are undergoing intensive myofascial interventions. Myofascial pain is often associated with other underlying structural problems and any abnormalities need to be ruled out prior to injection.

For acute exacerbations trigger point injections are indicated in those patients where well-circumscribed trigger points have been consistently observed, demonstrating a local twitch response characteristic radiation of pain pattern and local autonomic reaction, such as persistent hyperemia following palpation. Generally, these injections are not necessary unless consistently observed trigger points are not responding to specific, noninvasive, myofascial interventions within approximately a 6-week time frame.

Complications – Potential but rare complications of trigger point injections include infection, pneumothorax, anaphylaxis, penetration of viscera, neurapraxia and neuropathy. If corticosteroids are injected in addition to local anesthetic, there is a risk of local myopathy developing. Severe pain on injection suggests the possibility of an intraneural injection, and the needle should be immediately repositioned.

Patients should be reassessed after each injection session for an 80% improvement in pain (as measured by accepted pain scales) and evidence of functional improvement for 3 months. A positive result would include a return to base line function, return to increased work duties, and measurable improvement in physical activity goals including return to baseline after an exacerbation.

Refer to the original guideline document for time to produce effect, frequency, and optimum/maximum duration of treatments.

#### *Prolotherapy*

The injections are invasive, may be painful to the patient, and are not generally accepted or widely used. Therefore, the use of prolotherapy for low back or other chronic joint pain is not recommended.

#### *Epiduroscopy and Epidural Lysis of Adhesions*

Given the low likelihood of a positive response, the additional costs and time requirement, and the possible complications from the procedure, epidural injection, or mechanical lysis, is not recommended.

Epiduroscopy-directed steroid injections are also not recommended as there is no evidence to support an advantage for using an epiduroscope with steroid injections.

#### *Botulinum Toxin Injections*

Description – Used to temporarily weaken or paralyze muscles. May reduce muscle pain in conditions associated with spasticity, dystonia, or other types of painful muscle spasm. Neutralizing antibodies develop in at least 4% of patients treated with botulinum toxin type A, rendering it

ineffective. Several antigenic types of botulinum toxin have been described. Botulinum toxin type B, first approved by the United States Food and Drug Administration (FDA) in 2001, is similar pharmacologically to botulinum toxin type A. It appears to be effective in patients who have become resistant to the type A toxin. The immune responses to botulinum toxins type A and B are not cross-reactive, allowing type B toxin to be used when type A action is blocked by antibody. Experimental work with healthy human volunteers suggests that muscle paralysis from type B toxin is not as complete or as long lasting as that resulting from type A. The duration of treatment effect of botulinum toxin type B for cervical dystonia has been estimated to be 12 to 16 weeks. EMG needle guidance may permit more precise delivery of botulinum toxin to the target area.

Prior to consideration of botulinum toxin injection for piriformis syndrome, patients should have had marked (80% or better) but temporary improvement with three separate trigger point injections. To be a candidate for botulinum toxin injection for piriformis syndrome, patients should have had symptoms return to baseline or near baseline despite an appropriate stretching program after trigger point injections. Botulinum toxin injections of piriformis should be performed by a physician experienced in this procedure and utilize either ultrasound, fluoroscopy, or EMG needle guidance. Botulinum toxin should be followed by limb strengthening and reactivation.

Indications – For conditions which produce chronic spasticity, dystonia, or piriformis syndrome. There should be evidence of limited ROM prior to the injection.

It is not recommended for use for other myofascial trigger points.

Complications – There is good evidence that cervical botulinum toxin A injections cause transient dysphagia and neck weakness. Allergic reaction to medications, dry mouth and vocal hoarseness may also occur. Rare systemic effects include flu-like syndrome, and weakening of distant muscle. There is an increased risk of systemic effects in patients with motor neuropathy or disorders of the neuromuscular junction.

Refer to the original guideline document for time to produce effect, frequency, and optimum and maximum duration of treatments.

#### Interdisciplinary Rehabilitation Programs

These are the gold standard of treatment for individuals with chronic pain who have not responded to less intensive modes of treatment. There is good evidence that interdisciplinary programs which include screening for psychological issues, identification of fear-avoidance beliefs and treatment barriers, and establishment of individual functional and work goals, will improve function and decrease disability. These programs should assess the impact of pain and suffering on the patient's medical, physical, psychological, social, and/or vocational functioning. In general, interdisciplinary programs evaluate and treat multiple and sometimes irreversible conditions, including but not limited to painful musculoskeletal, neurological, and other chronic painful disorders and psychological issues; drug dependence, abuse or addiction; high levels of stress and anxiety; failed surgery; and pre-existing or latent psychopathology. The number of professions involved in the team in a chronic pain program may vary due to the complexity of the needs of the person served. The Division recommends consideration of referral to an interdisciplinary program within 6 months post-injury in patients with delayed recovery unless successful surgical interventions or other medical and/or psychological treatments complications intervene.

Chronic pain patients need to be treated as outpatients within a continuum of treatment intensity. Outpatient chronic pain programs are available with services provided by a coordinated interdisciplinary team within the same facility (formal) or as coordinated among practices by the authorized treating physician (informal). Formal programs are able to provide coordinated, high intensity level of services and are recommended for most chronic pain patients who have received multiple therapies during acute management.

Patients with addiction problems or high dose opioid or other drugs of abuse use may require inpatient and/or outpatient chemical dependency treatment programs before or in conjunction with other interdisciplinary rehabilitation. Guidelines from the American Society of Addiction Medicine are available and may be consulted relating to the intensity of services required for different classes of patients in order to achieve successful treatment.

Informal interdisciplinary pain programs may be considered for patients who are currently employed, those who cannot attend all day programs, those with language barriers, or those living in areas not offering formal programs. Before treatment has been initiated, the patient, physician, and insurer should agree on treatment approach, methods, and goals. Generally the type of outpatient program needed will depend on the degree of impact the pain has had on the patient's medical, physical, psychological, social and/or vocational functioning.

When referring a patient for formal outpatient interdisciplinary pain rehabilitation, an occupational rehabilitation or an opioid treatment program, the Division recommends the program meets the criteria of the Commission on Accreditation of Rehabilitation Facilities (CARF).

Inpatient pain rehabilitation programs are rarely needed but may be necessary for patients with any of the following conditions: (a) high risk for medical instability; (b) moderate-to-severe impairment of physical/functional status; (c) moderate-to-severe pain behaviors; (d) moderate impairment of cognitive and/or emotional status; (e) dependence on medications from which he or she needs to be withdrawn; and (f) the need for 24-hour supervised nursing.



Whether formal or informal programs, they should be comprised of the following dimensions:

- a. **Communication:** To ensure positive functional outcomes, communication between the patient, insurer and all professionals involved must be coordinated and consistent. Any exchange of information must be provided to all professionals, including the patient. Care decisions should be communicated to all and should include the family or other support system.
- b. **Documentation:** Through documentation by all professionals involved and/or discussions with the patient, it should be clear that functional goals are being actively pursued and measured on a regular basis to determine their achievement or need for modification.
- c. **Treatment Modalities:** Use of modalities may be necessary early in the process to facilitate compliance with and tolerance to therapeutic exercise, physical conditioning, and increasing functional activities. Active treatments should be emphasized over passive treatments. Active treatments should encourage self-coping skills and management of pain, which can be continued independently at home or at work.
- d. **Therapeutic Exercise Programs:** A therapeutic exercise program should be initiated at the start of any treatment rehabilitation. Such programs should emphasize education, independence, and the importance of an on-going exercise regime.
- e. **Return-to-Work:** The authorized treating physician should continually evaluate the patient for their potential to return to work. When return-to-work is an option, it may be appropriate to implement a Work Hardening Program (as described in "Return-to-Work" below). For patients currently employed, efforts should be aimed at keeping them employed. Formal rehabilitation programs should provide assistance in creating work profiles. For more specific information regarding return-to-work, refer to "Return-to-Work" below.
- f. **Patient Education:** Patients with pain need to re-establish a healthy balance in lifestyle. All providers should educate patients on how to overcome barriers to resuming daily activity, including pain management, decreased energy levels, financial constraints, decreased physical ability, and change in family dynamics.
- g. **Psychosocial Evaluation and Treatment:** Psychosocial evaluation should be initiated, if not previously done. Providers of care should have a thorough understanding of the patient's personality profile; especially if dependency issues are involved. Psychosocial treatment may enhance the patient's ability to participate in pain treatment rehabilitation, manage stress, and increase their problem-solving and self-management skills.
- h. **Vocational Assistance:** Vocational assistance can define future employment opportunities or assist patients in obtaining future employment. Refer to "Return-to-Work" below for detailed information.

Interdisciplinary programs are characterized by a variety of disciplines that participate in the assessment, planning, and/or implementation of the treatment program. These programs are for patients with greater levels of perceived disability, dysfunction, de-conditioning and psychological involvement. Programs should have sufficient personnel to work with the individual in the following areas: behavior, functional, medical, cognitive, pain management, psychological, social and vocational.

#### *Formal Interdisciplinary Rehabilitation Programs*

##### Interdisciplinary Pain Rehabilitation

An Interdisciplinary Pain Rehabilitation Program provides outcomes-focused, coordinated, goal-oriented interdisciplinary team services to measure and improve the functioning of persons with pain and encourage their appropriate use of health care system and services. The program can benefit persons who have limitations that interfere with their physical, psychological, social, and/or vocational functioning. The program shares information about the scope of the services and the outcomes achieved with patients, authorized providers, and insurers.

The interdisciplinary team maintains consistent integration and communication to ensure that all interdisciplinary team members are aware of the plan of care for the patient, are exchanging information, and implement the plan of care. The team members make interdisciplinary team decisions with the patient and then ensure that decisions are communicated to the entire care team.

The Medical Director of the pain program should ideally be board certified in pain management, or be board certified in his or her specialty area and have completed a one year fellowship in interdisciplinary pain medicine or palliative care recognized by a national board, or have two years' experience in an interdisciplinary pain rehabilitation program. Individuals who assist in the accomplishment of functional, physical, psychological, social and vocational goal must include: a medical director, pain team physician(s), and pain team psychologist. Other disciplines on the team may include, but are not limited to: biofeedback therapist, occupational therapist, physical therapist, registered nurse (RN), case manager, exercise physiologist, psychologist, psychiatrist, and/or nutritionist.

Refer to the original guideline document for time to produce effect, frequency, and optimum and maximum duration of treatments.

##### Occupational Rehabilitation

This is an interdisciplinary program addressing a patient's employability and return-to-work. It includes a progressive increase in the number of hours per day that a patient completes work simulation tasks until the patient can tolerate a full workday. A full workday is case specific and is defined by the previous employment of the patient. Safe work place practices and education of the employer and social support system regarding

the person's status should be included. This is accomplished by addressing the medical, psychological, behavioral, physical, functional, and vocational components of employability and return-to-work.

The interdisciplinary team should, at a minimum, be comprised of a qualified medical director who is board certified with documented training in occupational rehabilitation, team physicians having experience in occupational rehabilitation, occupational therapy and physical therapy.

As appropriate, the team may also include: chiropractor, RN, case manager, psychologist and vocational specialist or certified biofeedback therapist.

Refer to the original guideline document for time to produce effect, frequency, and optimum/maximum duration of treatments.

#### *Informal Interdisciplinary Rehabilitation Program*

A coordinated interdisciplinary pain rehabilitation program is one in which the authorized treating physician coordinates all aspects of care. This type of program is similar to the formal programs in that it is goal oriented and provides interdisciplinary rehabilitation services to manage the needs of the patient in the following areas: (a) functional, (b) medical, (c) physical, (d) psychological, (e) social, and (f) vocational.

This program is different from a formal program in that it involves lower frequency and intensity of services/treatment. Informal rehabilitation is geared toward those patients who do not need the intensity of service offered in a formal program or who cannot attend an all-day program due to employment, daycare, language or other barriers.

Patients should be referred to professionals experienced in outpatient treatment of chronic pain. The Division recommends the authorized treating physician consult with physicians experienced in the treatment of chronic pain to develop the plan of care. Communication among care providers regarding clear objective goals and progress toward the goals is essential. Employers should be involved in return to work and work restrictions and the family/social support system should be included in the treatment plan. Other disciplines likely to be involved include biofeedback therapist, occupational therapist, physical therapist, RN, psychologist, case manager, exercise physiologist, psychiatrist, and/or nutritionist.

Refer to the original guideline document for time to produce effect, frequency, and optimum/maximum duration of treatments.

#### *Opioid/Chemical Treatment Programs*

Chemical dependency, which for worker compensation issues will usually be related to opioids, anxiolytics, or hypnotics as prescribed for the original workers compensation injury, should be treated with specific programs providing medical and psychological assessment, treatment planning and individual as well group counseling and education.

They may be inpatient or outpatient programs, depending upon the level of intensity of services required. Formal treatment programs are appropriate for patients who have more intense (e.g., use extraordinarily excessive doses of prescription drugs to which they have developed tolerance) or multiple drug abuse issues (e.g., benzodiazepines and/or alcohol) and those with complex medical conditions or psychiatric issues drug misuse. A medical physician with appropriate training preferably board certified in addiction medicine, should provide the initial evaluation and oversee the program. Full primary assessment should include behavioral health assessment; medical history; physical examination; mental status; current level of functioning; employment history; legal history; history of abuse, violence, and risk taking behavior; education level; use of alcohol, tobacco and other drugs; and social support system.

Addiction counselors, and other trained health care providers as needed, are involved in the program. Peer and group support is an integral part of the program and families are encouraged to attend. There should be good communication between the program and other external services, external health care providers, Alanon, Alcoholics Anonymous (AA) and pain medicine providers. Drug screening is performed as appropriate for the individual, minimally initially and at least weekly during the initial detoxification and intensive initial treatment.

Clear withdrawal procedures are delineated for voluntary, against medical advice, and involuntary withdrawal. Withdrawal programs must have a clear treatment plan and include description of symptoms of medical and emotional distress, significant signs of opioid withdrawal, and actions taken. All programs should have clear direction on how to deal with violence in order to assure safety for all participants. Transition and discharge should be carefully planned with full communication to outside resources. Duration of inpatient programs is usually 4 weeks while outpatient programs may take 12 weeks.

Drug detoxification may be performed on an outpatient or inpatient basis. Detoxification is unlikely to succeed in isolation when not followed by prolonged chemical dependency treatment. Isolated detoxification is usually doomed to failure with very high recidivism rates.

Neither ultra-rapid nor rapid-detoxification are recommended due to possible respiratory depression and death and the lack of evidence for long range treatment success.

Abstinence models are preferred by most chemical dependency treatment programs but are problematic for those chronic pain patients who may require the continued use of opioid analgesics. Methadone, buprenorphine, or buprenorphine/naloxone are usually the first line agents for treating such patients; however, continued use in an outpatient setting of methadone for opioid dependency requires dispensing by a licensed methadone clinic and buprenorphine, for the same purpose, by a physician possessing a special Drug Enforcement Agency (DEA) license. As of the time of this guideline writing, some formulations of buprenorphine/naloxone have been FDA approved for the treatment of opioid dependence. It is strongly recommended that the use of either drug for the purpose of treating chronic pain be limited to physicians with additional training. In the case of methadone, there are increasing numbers of inadvertent deaths due to misuse, including prescribing errors. In the case of buprenorphine, its use as an analgesic is not currently FDA approved and conversion to this drug from other opioids is difficult. It should never be a first-line analgesic for chronic pain due to high cost and the presence of other opioids that may be more effective for moderate-to-severe chronic pain.

Tapering opioids on an outpatient basis requires a highly motivated patient and diligent treatment team and may be accomplished by decreasing the current dose 10% per day or per week. Tapering should be accompanied by addiction counseling. Failing a trial of tapering a patient should be sent to a formal addiction program. When the dose has reached one third of the original dose, the taper should proceed at half or less of the initial rate. Doses should be held or possibly increased if severe withdrawal symptoms, pain, or reduced treatment failure otherwise occurs. This method is tedious, time consuming and more likely to fail than more rapid and formalized treatment programs.

Refer to the original guideline document for time to produce effect, frequency, and optimum/maximum duration of programs.

### Medications and Medical Management

There is no single formula for pharmacological treatment of patients with chronic nonmalignant pain. A thorough medication history, including use of alternative and over the counter medications, should be performed at the time of the initial visit and updated periodically. The medication history may consist of evaluating patient refill records through pharmacies to determine if the patient is appropriately taking their prescribed regimen. Appropriate application of pharmacological agents depends on the patient's age, past history (including history of substance abuse), drug allergies and the nature of all medical problems. It is incumbent upon the healthcare provider to thoroughly understand pharmacological principles when dealing with the different drug families, their respective side effects, drug interactions, bioavailability profiles, and primary reason for each medication's usage. Patients should be aware that medications alone are unlikely to provide complete pain relief. In addition to pain relief, a primary goal of drug treatment is to improve the patient's function as measured behaviorally. In addition to taking medications, continuing participation in exercise programs and using self-management techniques such as biofeedback, cognitive behavioral therapy and other individualized physical and psychological practices are essential elements for successful chronic pain management.

Control of chronic non-malignant pain is expected to involve the use of medication. Strategies for pharmacological control of pain cannot be precisely specified in advance. Rather, drug treatment requires close monitoring of the patient's response to therapy, flexibility on the part of the prescriber and a willingness to change treatment when circumstances change. Many of the drugs discussed in the medication section were licensed for indications other than analgesia, but are effective in the control of some types of chronic pain.

It is generally wise to begin management with lower cost medications whose efficacy equals higher cost medications and medications with a greater safety profile. Decisions to progress to more expensive, non-generic, and/or riskier products are made based on the drug profile, patient feedback, and improvement in function. The provider must carefully balance the untoward side effects of the different drugs with therapeutic benefits, as well as monitoring for any drug interactions.

All medications should be given an appropriate trial in order to test for therapeutic effect. The length of an appropriate trial varies widely depending on the individual drug. Certain medications may take several months to determine the efficacy, while others require only a few doses. It is recommended that patients with chronic nonmalignant pain be maintained on drugs that have the least serious side effects. For example, patients need to be tried or continued on acetaminophen and/or low dose generic antidepressant medications whenever feasible, as part of their overall treatment for chronic pain. Patients with renal or hepatic disease may need increased dosing intervals with chronic acetaminophen use. Chronic use of nonsteroidal anti-inflammatory drugs (NSAIDs) is generally not recommended due to increased risk of cardiovascular events and gastrointestinal (GI) bleeding. There is good evidence that naproxen has the least risk for cardiovascular events when compared to other NSAIDs. There is good evidence that glucosamine does not improve pain related disability in those with chronic low back pain and degenerative changes on radiologic studies; therefore, it is not recommended for chronic spinal or non-joint pain. For chronic pain related to joint osteoarthritis see specific extremity guidelines.

Opioid analgesics and other drugs of potential abuse such as sedative hypnotics or benzodiazepines may be used in properly selected cases for chronic pain patients, although total elimination of these medications is desirable whenever clinically feasible. It is strongly recommended that such pharmacological management be monitored or managed by an experienced pain medicine physician. Multimodal therapy is the preferred mode of treatment for chronic pain patients whether or not these drugs were used acutely or sub-acutely.

Neuropathic pain can be treated with a variety of medications; however, all have specific side effects and other interactions that clinicians must be

mindful of. It is suggested that patients with significant peripheral neuropathic pain be trialed with a tricyclic antidepressant (TCA) medication initially, as low dose medication in this category is frequently tolerated and performs sufficiently to decrease pain 30% to 50%. When these fail, side effects are not tolerated, or a patient has medical issues precluding the use of this class of drugs, other appropriate medications can be tried. Second line drugs include the anticonvulsants gabapentin and pregabalin. Comparison studies of amitriptyline (Elavil, Endep, Vanatrip) and gabapentin (Fanatrex, Gabarone, Gralise, Horizant, Neurontin) or carbamazepine (Carbatrol, Epitol, Equetro, Tegretol) have shown no appreciable difference between the drugs; thus, there is good evidence that there is little clinical outcome difference between the medications although gabapentin may be better tolerated. Third line drugs are the serotonin-norepinephrine reuptake inhibitors (SNRIs), which have demonstrated some effectiveness for treating neuropathic pain, and topical lidocaine. The SNRI duloxetine (Cymbalta, Ariclain, Xeristar, Yentreve, Duzela) has not been shown to be superior to the TCA amitriptyline and there is no reason to prefer duloxetine in patients who have not been treated with a TCA. Fourth line drugs are opioids, tramadol (Rybix, Ryzolt, Ultram), and tapentadol (Nucynta). Other medications have few clinical trials to support them but may be helpful in some patients.

The preceding principles do not apply to chronic headache patients. These patients should be referred to a physician specializing in the diagnosis and treatment of headache and facial pain.

For the clinician to interpret the material on medications for chronic pain, it should be noted that: (1) drug profiles listed are not complete; (2) dosing of drugs will depend upon the specific drug, especially for off-label use; and (3) not all drugs within each class are listed, and other drugs within the class may be appropriate for individual cases. Clinicians should refer to informational texts or consult a pharmacist before prescribing unfamiliar medications or when there is a concern for drug interactions.

Refer to the original guideline document for additional information on specific medications, including indications, contraindications, side effects, drug interactions, and laboratory monitoring required.

#### Orthotics/Prosthetics/Equipment

Devices and adaptive equipment may be necessary in order to reduce impairment and disability, to facilitate medical recovery, to avoid re-aggravation of the injury, and to maintain maximum medical improvement. Indications would be to provide relief of the industrial injury, prevent further injury and control neurological and orthopedic injuries for reduced stress during functional activities. In addition, they may be used to modify tasks through instruction in the use of a device or physical modification of a device. Equipment needs may need to be reassessed periodically. Refer to "Return-to-Work" below for more detailed information.

Equipment may include high and low technology assistive devices, computer interface or seating, crutch or walker training, and self-care aids. It should improve safety and reduce risk of re-injury. Standard equipment to alleviate the effects of the injury on the performance of activities of daily living may vary from simple to complex adaptive devices to enhance independence and safety. Certain equipment related to cognitive impairments may also be required.

Ergonomic modifications may be necessary to facilitate medical recovery, to avoid re-aggravation of the injury, and to maintain maximum medical improvement. Ergonomic evaluations with subsequent recommendations may assist with the patients' return-to-work. (Refer to Section E.6, Jobsite Evaluation, in the original guideline document for further information.)

For chronic pain disorders, equipment such as foot orthoses may be helpful. The injured worker should be educated as to the potential harm from using a lumbar support for a period of time greater than which is prescribed. Harmful effects include de-conditioning of the trunk musculature, skin irritation, and general discomfort. Use of cervical collars is not recommended for chronic cervical myofascial pain. Special cervical orthosis and/or equipment may have a role in the rehabilitation of a cervical injury such as those injuries to a cervical nerve root resulting in upper extremity weakness or a spinal cord injury with some degree of paraparesis or tetraparesis. Use of such devices would be in a structured rehabilitation setting as part of a comprehensive rehabilitation program.

Fabrication/modification of orthotics, including splints, would be used when there is need to normalize weight-bearing, facilitate better motion response, stabilize a joint with insufficient muscle or proprioceptive/reflex competencies, to protect subacute conditions as needed during movement, and correct biomechanical problems. Orthotic/prosthetic training is the skilled instruction (preferably by qualified providers) in the proper use of orthotic devices and/or prosthetic limbs.

For information regarding specific types of orthotics/prosthetics/equipment, refer to individual medical treatment guidelines.

#### Patient Education

Patients should be educated on their specific injury, assessment findings, and plan of treatment and encouraged to take an active role in establishing functional outcome goals. No treatment plan is complete without addressing issues of individual and/or group patient education as a means of prolonging the beneficial effects of rehabilitation, as well as facilitating self-management of symptoms and prevention of secondary disability.

In some cases, educational intervention combined with exercises may achieve results comparable to surgical intervention for patients who have undergone previous surgery.

Patient education is an interactive process that provides an environment where the patient not only acquires knowledge but also gains an understanding of the application of that knowledge (refer to the original guideline for specific patient education topics).

Educational efforts should also target family and other support persons, the case manager, the insurer, and the employer as indicated to optimize the understanding of the patient and the outcome. Professional translators should be provided for non-English speaking patients to assure optimum communication. All education, teaching, and instruction given to the patient should be documented in the medical record.

Effects of education weaken over time; continuing patient education sessions will be required to maximize the patient's function. The effectiveness of educational efforts can be enhanced through attention to the learning style and receptivity of the patient. Written educational materials may reinforce and prolong the impact of verbal educational efforts. Overall, patient education should emphasize health and wellness, return-to-work and return to a productive life.

Refer to the original guideline document for time to produce effect and frequency.

#### Personality/Psychological/Psychosocial Intervention

Psychosocial treatment is a well-established therapeutic and diagnostic intervention with selected use in acute pain problems, and more widespread use in sub-acute and chronic pain populations. Psychosocial treatment is recommended as an important component in the total management of a patient with chronic pain and should be implemented as soon as the problem is identified.

If a diagnosis consistent with the standards of the American Psychiatric Association (APA) Diagnostic and Statistical Manual of Mental Disorders (DSM) has been determined, the patient should be evaluated for the potential need for psychiatric medications. Use of any medication to treat a diagnosed condition may be ordered by the authorized treating physician or by the consulting psychiatrist. Visits for management of psychiatric medications are medical in nature and are not a component of psychosocial treatment. Therefore, separate visits for medication management may be necessary, depending upon the patient and medications selected.

Psychosocial interventions include psychotherapeutic treatments for mental health conditions, as well as behavioral medicine treatments for patients without psychiatric conditions, but who may need to make major life changes in order to cope with pain or adjust to disability. Examples of these treatments include cognitive behavioral therapy, relaxation training, mindfulness training, and sleep hygiene training.

In total, the evidence clearly supports cognitive behavioral therapy (CBT) and it should be offered to all chronic pain patients without other serious issues, as discussed above.

CBT is often combined with active therapy in an interdisciplinary program formal or informal. It must be coordinated with a psychologist or psychiatrist. CBT can be done in a small group or individually and the usual number of treatments varies between 8 and 16 sessions.

Before CBT is done, the patient must have a full psychological evaluation. The CBT program must be done under the supervision of a PhD, PsyD, EdD, or Psychiatric MD/DO.

For all psychological/psychiatric interventions, an assessment and treatment plan with measurable behavioral goals, time frames, and specific interventions planned, must be provided to the treating physician prior to initiating treatment. A status report must be provided to the authorized treating physician every two weeks during initial more frequent treatment and monthly thereafter. The report should provide documentation of progress towards functional recovery and discussion of the psychosocial issues affecting the patient's ability to participate in treatment. The report should also address pertinent issues such as pre-existing, aggravated, and/or causative, as well as project realistic functional prognosis.

Refer to the original guideline document for additional information, including time to product effect, frequency, and optimum and maximum duration of CBT and other psychological/psychiatric interventions.

#### Restriction of Activities

Continuation of normal daily activities is the recommendation for chronic pain patients since immobility will negatively affect rehabilitation. Prolonged immobility results in a wide range of deleterious effects, such as a reduction in aerobic capacity and conditioning, loss of muscle strength and flexibility, increased segmental stiffness, promotion of bone demineralization, impaired disc nutrition, and the facilitation of the illness role.

Immobility may range from bed rest to the continued use of orthoses, such as cervical collars and lumbar support braces. While these interventions may have been ordered in the acute phase, the provider should be aware of their impact on the patient's ability to adequately comply with and

successfully complete rehabilitation. There is strong evidence against the use of bed rest in acute low pain back cases without neurologic symptoms.

Patients should be educated to the detrimental effects of immobility versus the efficacious use of limited rest periods. Adequate rest allows the patient to comply with active treatment and benefit from the rehabilitation program. In addition, complete work cessation should be avoided, if possible, since it often further aggravates the pain presentation and promotes disability. Modified return-to-work is almost always more efficacious and rarely contraindicated in the vast majority of injured workers with chronic pain.

#### Return-to-Work

Return-to-work, and/or work-related activities whenever possible is one of the major components in chronic pain management and rehabilitation. There is some evidence that an integrated care program including workplace interventions and graded activity teaching that pain need not limit activity, is effective in returning patients with chronic low back pain to work, even with minimal reduction of pain. Return-to-work is a subject that should be addressed by each workers' compensation provider at the first meeting with the injured employee, and be updated at each additional visit. A return-to-work format should be part of a company's health plan, knowing that return-to-work can decrease anxiety, reduce the possibility of depression, and reconnect the worker with society.

Because a prolonged period of time off work will decrease the likelihood of return to work, the first weeks of treatment are crucial in preventing and/or reversing chronicity and disability mindset. In complex cases, experienced nurse case managers may be required to assist in return-to-work. Other services, including psychological evaluation and/or treatment, jobsite analysis, and vocational assistance may be employed.

The following should be considered when attempting to return an injured worker with chronic pain to work.

- a. Job history interview
- b. Coordination of care
- c. Communication
- d. Establishment of return-to-work status
- e. Establishment of activity level restrictions
- f. Rehabilitation and return to-work
- g. Vocational assistance

#### *Recommendations to Employers and Employees of Small Businesses*

Employees of small businesses who are diagnosed with chronic pain may not be able to perform any jobs for which openings exist. Temporary employees may fill those slots while the employee functionally improves. Some small businesses hire other workers and if the injured employee returns to the job, the supervisor/owner may have an extra employee. To avoid this, it is suggested that case managers be accessed through their payer or third party administrator. Case managers may assist with resolution of these problems, as well as assist in finding modified job tasks, or find jobs with reduced hours, etc., depending upon company philosophy and employee needs.

#### *Recommendations to Employers and Employees of Mid-sized and Large Businesses*

Employers are encouraged by the Division to identify modified work within the company that may be available to injured workers with chronic pain who are returning to work with temporary or permanent restrictions. To assist with temporary or permanent placement of the injured worker, it is suggested that a program be implemented that allows the case manager to access descriptions of all jobs within the organization.

#### Therapy—Active

The following active therapies are widely used and accepted methods of care for a variety of work-related injuries. Active therapy is based on the philosophy that therapeutic exercise and/or activity are beneficial for restoring flexibility, strength, endurance, function, range-of-motion, and can alleviate discomfort. All active therapy plans should be made directly with patients in the interest of achieving long-term individualized goals.

Active therapy requires an internal effort by the individual to complete a specific exercise or task. This form of therapy requires supervision from a therapist or medical provider such as verbal, visual, and/or tactile instruction(s). Active therapy is intended to promote independence and self-reliance in managing the physical pain as well as to improve the functional status in regard to the specific diagnosis and general conditioning and well-being. At times, a provider may help stabilize the patient or guide the movement pattern but the energy required to complete the task is predominately executed by the patient. Therapy in this section should not be merely a repeat of previous therapy but should focus specifically on the individual goals and abilities of the patient with chronic pain.

The goal of active therapy is to teach the patient exercises that they can perform regularly on their own. Patients should be instructed to continue

active therapies at home as an extension of the treatment process in order to maintain improvement levels. Follow-up visits to reinforce and monitor progress and proper technique are recommended. Home exercise can include exercise with or without mechanical assistance or resistance and functional activities with assistive devices.

Refer to the original guideline document for a description of the following active therapies including time to product effect, frequency, and optimum and maximum duration of treatment:

- Activities of daily living (ADL)
- Aquatic therapy
- Functional activities
- Functional electrical stimulation
- Spinal stabilization
- Neuromuscular re-education
- Therapeutic exercise
- Work conditioning
- Work simulation

#### Therapy—Passive

Most of the following passive therapies and modalities are generally accepted methods of care for a variety of work-related injuries. Passive therapy includes those treatment modalities that do not require energy expenditure on the part of the patient. They are principally effective during the early phases of treatment and are directed at controlling symptoms such as pain, inflammation and swelling and to improve the rate of healing soft tissue injuries. They should be used adjunctively with active therapies such as postural stabilization and exercise programs to help control swelling, pain, and inflammation during the active rehabilitation process. Please refer to Section B. 4. General Guideline Principles, Active Interventions in the original guideline document. Passive therapies may be used intermittently as a therapist deems appropriate or regularly if there are specific goals with objectively measured functional improvements during treatment; or if there are episodes of acute pain superimposed upon a chronic pain problem.

On occasion, specific diagnoses and post-surgical conditions may warrant durations of treatment beyond those listed as "maximum." Factors such as exacerbation of symptoms, re-injury, interrupted continuity of care and co-morbidities may extend durations of care. Having specific goals with objectively measured functional improvement during treatment can support extended durations of care. It is recommended that if after 6 to 8 visits no treatment effect is observed, alternative treatment interventions, further diagnostic studies or further consultations should be pursued.

Refer to the original guideline document for a description of the following passive therapies including time to product effect, frequency, and optimum and maximum duration of treatment:

- Electrical stimulation (unattended)
- Iontophoresis
- Manipulation
- Manipulation under general anesthesia (MUA) (not recommended)
- Manipulation under joint anesthesia (MUJA) (not recommended)
- Massage—manual or mechanical
- Mobilization (joint)
- Mobilization (soft tissue)
- Percutaneous electrical nerve stimulation (PENS)
- Superficial heat and cold therapy (including infrared therapy)
- Traction—manual
- Traction—mechanical
- Transcutaneous electrical nerve stimulation (TENS)
- Ultrasound (including phonophoresis)
- Vertebral Axial Decompression (VAX-D)/DRX, 9000 (not recommended)

#### Therapeutic Procedures—Operative

When considering operative intervention in chronic pain management, the treating physician must carefully consider the inherent risk and benefit of the procedure. All operative intervention should be based on a positive correlation with clinical findings, the clinical course, and diagnostic tests. A comprehensive assessment of these factors should have led to a specific diagnosis with positive identification of the pathologic condition. Operative

treatment is indicated when the natural history of surgically treated lesions is better than the natural history for non-operatively treated lesions.

Surgical procedures are seldom meant to be curative and would be employed in conjunction with other treatment modalities for maximum functional benefit. Functional benefit should be objectively measured and includes the following:

- a. Return-to-work or maintaining work status.
- b. Fewer restrictions at work or performing activities of daily living.
- c. Decrease in usage of medications prescribed for the work-related injury.
- d. Measurable functional gains, such as increased ROM or a documented increase in strength.

Education of the patient should include the proposed goals of the surgery, expected gains, risks or complications, and alternative treatment.

Smoking may affect soft tissue healing through tissue hypoxia. Patients should be strongly encouraged to stop smoking and be provided with appropriate counseling by the physician. If a treating physician recommends a specific smoking cessation program peri-operatively, this should be covered by the insurer. Physicians may monitor smoking cessation with laboratory tests such as cotinine levels. The surgeon will make the final determination as to whether smoking cessation is required prior to surgery.

Prior to surgical intervention, the patient and treating physician should identify functional operative goals and the likelihood of achieving improved ability to perform activities of daily living or work activities and the patient should agree to comply with the pre- and post-operative treatment plan including home exercise. The provider should be especially careful to make sure the patient understands the amount of post-operative therapy required and the length of partial- and full-disability expected post-operatively.

### Neurostimulation

Description – Spinal cord stimulation (SCS) is the delivery of low-voltage electrical stimulation to the spinal cord or peripheral nerves to inhibit or block the sensation of pain. The system uses implanted electrical leads and a battery powered implanted pulse generator.

It is particularly important that patients meet all of the indications before a permanent neurostimulator is placed because several studies have shown that workers' compensation patients are less likely to gain significant relief than other patients. As of the time of this guideline writing, spinal cord stimulation devices have been FDA approved as an aid to in the management of chronic intractable pain of the trunk and/or limbs, including unilateral and bilateral pain associated with the following: failed back surgery syndrome, intractable low back pain and leg pain.

While there is no evidence demonstrating effectiveness for use of SCS with CRPS II, it is generally accepted that SCS can be used for patients who have this condition. There is no evidence that supports its use for spinal axial pain. SCS may be most effective in patients with CRPS I or II who have not achieved relief with oral medications, rehabilitation therapy, or therapeutic nerve blocks, and in whom the pain has persisted for longer than 6 months.

Particular technical expertise is required to perform this procedure and is available in some neurosurgical, rehabilitation, and anesthesiology training programs and fellowships. Physicians performing this procedure must be trained in neurostimulation implantation and participate in ongoing training workshops on this subject, such as those sponsored by ISIS or as sponsored by implant manufacturers. Surgical procedures should be performed by surgeons, usually with a neurosurgical or spinal background.

Refer to the original guideline document for further information on complications, surgical indications including patient criteria for neurostimulation, contraindications, operative treatment, post-operative considerations, and post-operative therapy.

### Peripheral Nerve Stimulation

There are no randomized controlled studies for this treatment. This modality should only be employed with a clear nerve injury or when the majority of pain is clearly in a nerve distribution in patients who have completed 6 months of other appropriate therapy including pre-trial psychosocial evaluation and treatment. A screening trial should take place over 3 to 7 days and is considered successful if the patient meets both of the following criteria: (a) experiences a 50% decrease in pain, which may be confirmed by VAS or Numerical Rating Scale (NRS) and (b) demonstrates objective functional gains or decreased utilization of pain medications. Objective, measurable, functional gains should be evaluated by an occupational therapist and/or physical therapist and the primary treating physician prior to and before discontinuation of the trial. It may be used for proven occipital, ulnar, median and other isolated nerve injuries.

### Intrathecal Drug Delivery

Not generally recommended. Requires prior authorization. Due to conflicting studies in this population and complication rate for long-term use, it may be considered only in very rare occasions when dystonia and spasticity are dominant features or when pain is not able to be managed using any other non-operative treatment. Specific brands of infusion systems have been FDA approved for the following: chronic intraspinal (epidural



and intrathecal) infusion of preservative-free morphine sulfate sterile solution in the treatment of chronic intractable pain, chronic infusion of preservative-free ziconotide sterile solution for the management of severe chronic pain, and chronic intrathecal infusion of baclofen for the management of severe spasticity.

Refer to the original guideline document for complications, indications, and contraindications of this therapy.

#### Neuroablation with Rhizotomy as the Exception

The Division does not recommend the use of neuroablative procedures, except rhizotomy, for injured workers with chronic pain.

#### Dorsal Nerve Root Resection

This procedure is not recommended.

#### Maintenance Management

Successful management of chronic pain conditions results in fewer relapses requiring intense medical care. Failure to address long-term management as part of the overall treatment program may lead to higher costs and greater dependence on the health care system. Management of chronic pain disorder (CPD) continues after the patient has met the definition of maximum medical improvement (MMI). MMI is declared when a patient's condition has plateaued and the authorized treating physician believes no further medical intervention is likely to result in improved function. When the patient has reached MMI, a physician must describe in detail the maintenance treatment.

Maintenance care in CPD requires a close working relationship between the carrier, the providers, and the patient. Providers and patients have an obligation to design a cost-effective, medically appropriate program that is predictable and allows the carrier to set aside appropriate reserves. Carriers and adjusters have an obligation to assure that medical providers can design medically appropriate programs. A designated primary physician for maintenance team management is recommended.

Maintenance care will be based on principles of patient self-management. When developing a maintenance plan of care, the patient, physician and insurer should attempt to meet the following goals:

- a. Maximal independence will be achieved through the use of home exercise programs or exercise programs requiring special facilities (e.g., pool, health club) and educational programs.
- b. Modalities will emphasize self-management and self-applied treatment.
- c. Management of pain or injury exacerbations will emphasize initiation of active therapy techniques and may occasionally require anesthetic injection blocks.
- d. Dependence on treatment provided by practitioners other than the authorized treating physician will be minimized.
- e. Periodic reassessment of the patient's condition will occur as appropriate.
- f. Patients will understand that failure to comply with the elements of the self-management program or therapeutic plan of care may affect consideration of other interventions.

#### Home Exercise Programs and Exercise Equipment

Most patients have the ability to participate in a home exercise program after completion of a supervised exercise rehabilitation program. Programs should incorporate an exercise prescription including the continuation of an age-adjusted and diagnosis-specific program for aerobic conditioning, flexibility, stabilization, and strength. Some patients may benefit from the purchase or rental of equipment to maintain a home exercise program. Determination for the need of home equipment should be based on medical necessity to maintain MMI, compliance with an independent exercise program, and reasonable cost. Before the purchase or long-term rental of equipment, the patient should be able to demonstrate the proper use and effectiveness of the equipment. Effectiveness of equipment should be evaluated on its ability to improve or maintain functional areas related to activities of daily living or work activity. Home exercise programs are most effective when done 3 to 5 times a week. Prior to purchasing the equipment a therapist and/or exercise specialist who has treated the patient should visit a facility with the patient to assure proper use of the equipment. Occasionally, compliance evaluations may be made through a 4 week membership at a facility offering similar equipment.

#### Exercise Programs Requiring Special Facilities

Some patients may have higher compliance with an independent exercise program at a health club versus participation in a home program. All exercise programs completed through a health club facility should focus on the same parameters of an age-adjusted and diagnosis-specific program for aerobic conditioning, flexibility, stabilization, and strength. Prior to purchasing a membership, a therapist and/or exercise specialist who has treated the patient should visit a facility with the patient to assure proper use of the equipment. Selection of health club facilities should be limited to those able to track attendance and utilization, and provide records available for physician and insurer review.

Refer to the original guideline document for frequency and maximum maintenance duration.

#### Patient Education Management

Educational classes, sessions, or programs may be necessary to reinforce self-management techniques. This may be performed as formal or informal programs, either group or individual.

Refer to the original guideline document for maintenance duration.

#### Psychological Management

An ideal maintenance program will emphasize management options implemented in the following order: (a) individual self-management (pain control, relaxation and stress management, etc.), (b) group counseling, (c) individual counseling by a psychologist or psychiatrist, and (d) inpatient treatment. Exacerbation of the injury may require psychological treatment to restore the patient to baseline. In those cases, use treatments and timeframe parameters listed in the biofeedback and psychological evaluation or intervention sections.

Refer to the original guideline document for maintenance duration.

#### Non Opioid Medication Management

In some cases, self-management of pain and injury exacerbations can be handled with medications, such as those listed in the "Medications and Medical Management" section. Physicians must follow patients who are on any chronic medication or prescription regimen for efficacy and side effects. Laboratory or other testing may be appropriate to monitor medication effects on organ function.

Refer to the original guideline document for maintenance duration.

#### Opioid Medication Management

As compared with other painful conditions there may be a role for chronic augmentation of the maintenance program with opioid medications. In selected cases, scheduled medications may prove to be the most cost effective means of insuring the highest function and quality of life; however, inappropriate selection of these patients may result in a high degree of iatrogenic illness. A patient should have met the criteria in the opioids section of these guidelines before beginning maintenance opioids. Laboratory or other testing may be appropriate to monitor medication effects on organ function. The following management is suggested for maintenance opioids:

- a. The medications should be clearly linked to improvement of function, not just pain control. All follow-up visits should document the patient's ability to perform routine functions satisfactorily. Examples include the abilities to perform: work tasks, drive safely, pay bills or perform basic math operations, remain alert and upright for 10 hours per day, or participate in normal family and social activities. If the patient is not maintaining reasonable levels of activity the patient should usually be tapered from the opioid and tried on a different long-acting opioid.
- b. A low dose opioid medication regimen should be defined, which may minimally increase or decrease over time. Dosages will need to be adjusted based on side effects of the medication and objective function of the patient. A patient may frequently be maintained on additional non-opioid medications to control side effects, treat mood disorders, or control neuropathic pain; however, only one long-acting opioid and one short-acting opioid for rescue use should be prescribed in most cases. Buccally absorbed opioids are not appropriate for these non-malignant pain patients. Transdermal medications are generally not recommended.
- c. All patients on chronic opioid medication dosages need to sign an appropriate opioid contract with their physician for prescribing the opioids.
- d. The patient must understand that continuation of the medication is contingent on their cooperation with the maintenance program. Use of non-prescribed drugs may result in tapering of the medication. The clinician should order random drug testing at least annually and when deemed appropriate to monitor medication compliance.
- e. Patients on chronic opioid medication dosages must receive them through one prescribing physician.

Refer to the original guideline document for maintenance duration.

#### Therapy Management

Some treatment may be helpful on a continued basis during maintenance care if the therapy maintains objective function and decreases medication use. With good management, exacerbations should be uncommon; not exceeding two times per year and using minimal or no treatment modality beyond self-management. On occasion, exacerbated conditions may warrant durations of treatment beyond those listed below. Having specific goals with objectively measured functional improvement during treatment can support extended durations of care. It is recommended that if after 6 to 8 visits no treatment effect is observed, alternative treatment interventions should be pursued.

Refer to the original guideline document for maintenance duration for active therapy, acupuncture, or manipulation.

## Injection Therapy

Refer to the original guideline document for frequency and maintenance duration for the following:

- Trigger point injections
- Epidural and selective nerve root injections
- Zygapophyseal (facet) injections
- Sacroiliac joint injection
- Radiofrequency medical branch neurotomy/facet rhizotomy

## Purchase or Rental of Durable Medical Equipment

It is recognized that some patients may require ongoing use of self-directed modalities for the purpose of maintaining function and/or analgesic effect. Purchase or rental of modality based equipment should be done only if the assessment by the physician and/or therapist has determined the effectiveness, compliance, and improved or maintained function by its application. It is generally felt that large expense purchases such as spas, whirlpools, and special mattresses are not necessary to maintain function.

Refer to the original guideline document for maintenance duration.

## Clinical Algorithm(s)

None provided

# Scope

## Disease/Condition(s)

Chronic pain disorder, including:

- Nociceptive pain
- Neurogenic pain
- Psychogenic pain

## Guideline Category

Counseling

Management

Treatment

## Clinical Specialty

Family Practice

Internal Medicine

Neurological Surgery

Neurology

Physical Medicine and Rehabilitation

Psychiatry

Psychology

Rheumatology

Surgery

## Intended Users

Advanced Practice Nurses

Chiropractors

Health Care Providers

Health Plans

Hospitals

Managed Care Organizations

Nurses

Occupational Therapists

Patients

Physical Therapists

Physician Assistants

Physicians

Psychologists/Non-physician Behavioral Health Clinicians

Public Health Departments

Social Workers

Substance Use Disorders Treatment Providers

Utilization Management

## Guideline Objective(s)

To provide advisory and educational guidelines for the treatment of chronic pain disorder that are enforceable under the Colorado Workers' Compensation Rules of Procedure

## Target Population

Patients who fit the International Association for the Study of Pain (IASP) definition of having "an unpleasant sensory and emotional experience with actual or potential tissue damage" and the definition of having chronic pain as "pain that persists for at least 30 days beyond the usual course of an acute disease or a reasonable time for an injury to heal or that is associated with a chronic pathological process that causes continuous pain (e.g., reflex sympathetic dystrophy)" and who qualify for treatment under Colorado's Workers' Compensation Act as an injured worker

## Interventions and Practices Considered

Non-operative Therapeutic Procedures\*

1. Acupuncture

2. Biofeedback
3. Complementary and alternative medicine
4. Treatment of sleep disturbances
5. Therapeutic injections
  - Epidural steroid spinal injections (ESI)
  - Zygapophyseal (facet) injections
  - Sacroiliac joint injections
  - Intradiscal steroid therapy (not recommended)
  - Radiofrequency medial branch neurotomy/facet rhizotomy
  - Dorsal nerve root ganglion radiofrequency ablation (not recommended)
  - Trigger point injections and dry needling treatment
  - Prolotherapy (not recommended)
  - Epiduroscopy and epidural lysis of adhesions (not recommended)
  - Epiduroscopy-directed steroid injections (not recommended)
  - Botulinum toxin injections
6. Interdisciplinary rehabilitation programs (formal and informal)
7. Opioid/chemical treatment programs
8. Medications and medical management
  - Alpha-acting agents
  - Anticonvulsants
  - Antidepressants
  - Hypnotics and sedatives
  - Marijuana (not recommended as per federal law)
  - Nonsteroidal anti-inflammatory drugs (NSAIDs)
  - Opioids
  - Skeletal muscle relaxants
  - Topical drug delivery
  - Tramadol
  - Other agents (glucosamine)
9. Orthotics/prosthetics equipment
10. Patient education
11. Personality/psychological/psychosocial/psychiatric interventions
12. Restriction of activities
13. Return to work
  - Job history interview
  - Coordination of care
  - Communication
  - Establishment of a return-to-work status
  - Establishment of activity level restrictions
  - Rehabilitation and return to work
  - Vocational assistance
14. Active therapy
  - Activities of daily living (ADL)
  - Aquatic therapy
  - Functional activities
  - Functional electrical stimulation
  - Spinal stabilization
  - Neuromuscular re-education
  - Therapeutic exercise
  - Work conditioning
  - Work simulation
15. Passive therapy
  - Electrical stimulation (unattended)
  - Iontophoresis

- Manipulation
- Manipulation under general anesthesia (MUA) (not recommended)
- Manipulation under joint anesthesia (MUJA) (not recommended)
- Manual or mechanical massage
- Joint or soft tissue mobilization
- Percutaneous electrical nerve stimulation (PENS)
- Superficial heat and cold therapy (including infrared therapy)
- Manual or mechanical traction
- Transcutaneous electrical nerve stimulation (TENS)
- Ultrasound (including phonophoresis)
- Vertebral axial decompression (VAX-D)/DRX, 9000

#### Operative Therapeutic Procedures\*

1. Neurostimulation
2. Peripheral nerve stimulation
3. Intrathecal drug delivery
4. Neuroablation with rhizotomy as the exception
5. Dorsal nerve root resection (not recommended)

#### Maintenance Management

1. Home exercise programs and exercise equipment
2. Exercise programs requiring special facilities
3. Patient education management
4. Psychological management
5. Non-opioid medication management
6. Opioid medication management
7. Therapy management
8. Injection therapy
9. Purchase or rental of durable medical equipment

\*Note: See the "Major Recommendations" field and the original guideline document. Not all of the listed interventions and practices are recommended routinely or generally.

## Major Outcomes Considered

- Functional improvement (time to return to work, ability to return to original job, etc.)
- Change in pain scores (visual analogue scale, Oswestry Disability score, etc.)
- Duration of therapeutic effect
- Time to recovery
- Relapse rate
- Side effects or complications

## Methodology

### Methods Used to Collect/Select the Evidence

Hand-searches of Published Literature (Primary Sources)

Hand-searches of Published Literature (Secondary Sources)

Searches of Electronic Databases

# Description of Methods Used to Collect/Select the Evidence

## General Literature Search Strategy

Studies were identified through the electronic database of PubMed (with specified search topics), and related links from articles identified by searches. For some articles, Web of Science, a literature citation database, was used when it was desirable to find literature that cited a particular article. Relevant evidence statements from Cochrane and British Medical Journal (BMJ) Clinical Evidence were reviewed. Selected guidelines/systematic reviews were also reviewed. The reference lists from other literature and tables of contents from related journals were scanned for relevant articles. Suggestions from various volunteer advisory bodies to the Division of Workers' Compensation were solicited.

Literature reviewed was in English. Literature searches were limited according to study type and human adults. Only randomized controlled trials or meta-analyses were used for evidence statements regarding treatment. Diagnostic accuracy studies were critiqued for diagnostic testing evidence and cohort, cross-sectional and case-control studies were critiqued for causation evidence statements. Literature which did not meet requirements for evidence statements could be referenced if it furnished useful background information or described interventions which are considered generally accepted by a consensus of health care providers. This information sometimes contributed to consensus decisions by the multi-disciplinary task force drafting the guidelines. Literature that was determined to be unrelated to the clinical issue, or which had such poor quality on initial review that it could not qualify for evidence nor provide meaningful input was not critiqued. All articles sent by the public were formally reviewed.

## Specific Search Strategy

All searches were done on PubMed, with Chronic Noncancer Pain as the constant search term and randomized controlled trial (RCT) as the limiting search element. The literature search included articles published from 2001 to 2010, with some searches incorporating a broader range of dates to address input from stakeholders. The search was conducted between August 2010 and November 2011 concurrently with the search strategy on the Complex Regional Pain Syndrome Medical Treatment Guidelines.

Search terms for the search of the PubMed collections were: Anticonvulsant drugs, Pregabalin, Gabapentin, Mexiletene, Intrathecal catheter, Dorsal root entry zone, Deep brain stimulation, Spinal cord stimulation, Adjuvant analgesics, Morphine, Hydrocodone, Oxycodone, Fentanyl, Oxymorphone, Codeine, Methadone, Acupuncture, Dronabinol, Ketamine, Tapentadol, Amitriptyline, Duloxetine, Harpagoside, Tizanidine, Zonisamide, Topiramate, Dextromethorphan, Methylaltraxone, Ziconotide, Lidocaine, Cannabinoid, Hypnosis, Motor cortex stimulation, TENS, PENS, Electrical stimulation, Interdisciplinary rehabilitation, Multidisciplinary rehabilitation, Biofeedback, Osteopathic manipulation, Chiropractic manipulation, Traction, Hypnotic drugs, Yoga, Massage, Cognitive behavioral therapy, Botulinum toxin, NSAID, Iontophoresis, Exercise, Capsaicin, Lamotrigine, Tramadol, Vitamin D, Tricyclic antidepressant, SSRI antidepressant, SNRI antidepressant, Topical analgesia, Trigger point injection, Low level laser, Methylene blue, Radiofrequency neurotomy, Nerve block.

## Medical Literature Review

Articles were selected for review based on relevance and informativeness after viewing their titles and abstracts.

## Number of Source Documents

Not stated

## Methods Used to Assess the Quality and Strength of the Evidence

### Subjective Review

Weighting According to a Rating Scheme (Scheme Given)

## Rating Scheme for the Strength of the Evidence

Grading of Systematic Reviews and Meta-Analyses\*

Criterion	Green	Yellow	Red	Comment
The study is in	"Systematic review," "meta-analysis," or both,	The title is	The article is a	"Systematic review" and

Criterion	Green	Yellow	Red	Comment
fact identified as a systematic review or meta-analysis	are in the title of the article, and the abstract supports the design in the title	ambiguous, but the abstract shows that the authors did a systematic review	narrative review or an overview, or is done by a single author	"meta-analysis" are generally recognized terms for a specific type of original research; narrative reviews are subject to biases which systematic reviews and meta-analyses methodically control for
Objectives of the systematic review or meta-analysis	Clearly stated in terms of PICOS: Patient population (disease, age, setting), Intervention (dose, frequency, etc.), Comparator (control group interventions), Outcome (morbidity, mortality, symptoms, function), and Study design (randomized trials only, broader design criteria)	PICOS elements all reported, but some ambiguity in some elements (e.g., Comparator described as "standard care" or "usual care" without further description)	One or more PICOS element missing or uninterpretable	The question being addressed should be clear from the abstract; it may be narrow or broad, but the scope and potential applicability should be well defined
Characteristics of eligible studies	In addition to PICOS, study characteristics defined in terms of restrictions for inclusion (e.g., minimum length of follow-up, whether co-interventions are included), and scope of reports (language, years of publication, unpublished material)	Ambiguity exists for some of the characteristics of eligible studies	Eligibility of studies is unclear, and scope of reports is not specified	
Information sources	Multiple information sources are clearly specified: databases (PubMed, Ovid, EMBASE, Cochrane, Web of Science), hand searches of tables of contents of relevant journals, meeting abstracts, reference lists, contacts with authors, manufacturers, trial registries)	Search limited to published material from two or more sources, without additional searching of registries or contact with authors	Search limited to a single information source (e.g., PubMed only)	While PubMed is a large and nearly comprehensive database, its yield can be influenced by how articles are indexed by the National Library of Medicine; additional sources of information can materially affect the conclusions of a systematic review or meta-analysis
Search strategy	Full electronic search strategy for at least one major database, with dates (e.g., PubMed 1970-October 2009), limits, combinations of search terms, such that it can be replicated by the reader	Databases and search terms are given, but there is some ambiguity in the strategy (e.g., PubMed "through 2007"), and replication by the reader would be difficult	Databases and search terms are too broad and vague to permit replication by the reader	Often given in an appendix to the article or in an online supplement, the strategy should be readily accessible
Study selection	Specification of which criteria determine eligibility for inclusion (e.g., randomization to specified interventions, which outcomes were required to be reported) and for quality (e.g., allocation concealment, intention-to-treat analysis, blinding) with at least two reviewers identified by initials; inter-rater agreement and	Two or more reviewers screen articles for inclusion, but there is some ambiguity in the criteria for inclusion or for	Only one reviewer selects studies; criteria are vague	Quality assessment should focus on risk of bias; scoring of articles for quality is not necessary and may be misleading. There is no standard process for selecting studies, but the



Criterion	Green	Yellow	Red	Comment
	methods of resolving disagreement are specified; a flow diagram enumerates articles retrieved from search, articles excluded after screening, and articles included for meta-analysis	inter-rater agreement and methods of resolving disagreement; flow diagram is lacking		process used by the reviewers should be clear enough to allow the reader to determine which studies might meet the test of inclusion
Outcomes for analysis	Meta-analysis is restricted to pre-specified primary and secondary outcomes, and exploratory (hypothesis-generating) analyses in the source literature are excluded from meta-analysis	Meta-analysis combines pre-specified primary and secondary outcomes in the source literature with exploratory analyses in the same literature, but assigns exploratory analyses a lower weight	Meta-analysis treats exploratory analyses in source literature on an equal basis with the pre-specified primary and secondary analyses	Exploratory analyses are too likely to be reported when they arise from the play of chance, and should not be included in any meta-analysis of the same outcomes; their inclusion is likely to bias the meta-analysis
Summary measures for meta-analysis with or without pooled Number Needed to Treat (NNT)	Principal summary measures (relative risk, risk difference, odds ratio, difference in means, hazard ratio) are specified and appropriate to the outcome measure; if NNT are reported, there is a fixed event rate in the control groups for the studies being combined	Risk ratios or odds ratios are reported, and NNT is not reported if there is a difference in the control group event rates across the different studies	Risk ratios or odds ratios are reported, but NNT is reported even when there is a difference in control group event rates across the different studies (the underlying baseline risks are not equal)	Relative risks and odds ratios are generally more stable for summary measures than risk differences; pooled NNT is misleading if the control group event rate (the baseline risk) is different across studies, even if the risk ratio is the same
Meta-analysis presentation	Results of meta-analysis are presented as an estimated summary effect (with confidence interval) across all included studies, displaying a forest plot with weights and confidence intervals for the included studies; a measure of heterogeneity is presented (e.g., $I^2$ ); the choice of fixed effect or random effects model is explained, and, if there is significant heterogeneity, there is an attempt to examine possible sources of heterogeneity	Estimated summary effect with confidence interval, with an estimate of heterogeneity, and an explanation of the choice of fixed or random effects model; however, an examination of sources of heterogeneity is lacking	Summary effect measure with confidence interval, but heterogeneity measures and examinations are lacking	No hard and fast rule dictates the choice of model, but because a fixed effect model assumes a single common effect size across studies, there should be a discussion of why it is appropriate for the included studies

\*See the [Colorado Division of Workers' Compensation Web site](#)  for rating schemes for randomized controlled trials and accuracy of tests to rule out disease.

## Methods Used to Analyze the Evidence

### Review of Published Meta-Analyses

## Description of the Methods Used to Analyze the Evidence

### Medical Literature Review

Published journal articles were selected to be critiqued by the Research Methodologist prior to distribution. Unpublished articles or office handouts submitted by Task Force members or the public were reviewed and critiqued by the Medical Director and Research Methodologist, who then communicated directly with the submitting individual regarding quality and relevance. The submitting individual retained the prerogative of distributing the material to the Task Force. Other unspecified material and public commentary received or solicited by the Division was reviewed and critiqued, as appropriate, and distributed at the discretion of the Medical Director and Medical Policy staff. Many articles were included in the bibliography without critiques or assessment for evidence. These articles were considered to provide pertinent information whether or not they lent themselves to formal evaluation for levels of evidence.

## Methods Used to Formulate the Recommendations

### Expert Consensus

### Other

## Description of Methods Used to Formulate the Recommendations

### Guidelines Process

The State of Colorado Division of Workers' Compensation Medical Treatment Guidelines updating process was completed in several stages. Initially, current medical literature related to the guideline was systematically reviewed, critiqued, and graded by the Division and the multi-disciplinary Task Force. Next, appropriate medical evidence and consensus were incorporated concurrently into the Guideline, section by section. During this stage, Task Force members were appointed for projects, working in sub-groups or individually, according to the task.

Guideline updating processes and resources dedicated to supporting the Task Force included:

- Medical literature review and grading, with the assistance of a professional Research Methodologist
- Evidence and consensus parameters to assist in the revision and evaluation of treatment recommendations
- A multi-disciplinary Advisory Panel and other advisory bodies to provide clinical feedback to the Task Force and the Division
- Administrative support and coordination, allowing participants to focus on clinical issues
- Opportunities for members to provide feedback on ways to improve the update process

### Selection of Task Force Members

Health care disciplines required to participate in the task force process were identified. Individuals selected were Level I or II Accredited Providers (if applicable), Board Certified in their area of specialty, in good standing within their medical specialty organization, and specialized in treatment of injured workers. Task force membership also included non-physician members of the workers' compensation system, such as: therapists, psychologists, attorneys, and risk managers. Prior task force participation was not necessary.

### Grading Recommendations

Graded consensus recommendations were developed based on the considered judgment of the multi-disciplinary Task Force, which considered the volume and consistency of the evidence and the generalizability and clinical impact of the recommendations.

## Rating Scheme for the Strength of the Recommendations

### Grades of Recommendation

*Some* means the recommendation considered at least one adequate scientific study, which reported that a treatment was effective.

*Good* means the recommendation considered the availability of multiple adequate scientific studies or at least one relevant high-quality scientific study, which reported that a treatment was effective.

*Strong* means the recommendation considered the availability of multiple relevant and high quality scientific studies, which arrived at similar conclusions about the effectiveness of a treatment.

## Cost Analysis

Published cost analyses were reviewed.

## Method of Guideline Validation

External Peer Review

## Description of Method of Guideline Validation

Advisory Panel

The second stage of the guideline update process included an additional review, conducted by an Advisory Panel and other advisory bodies that may consist of past Task Force members and clinical experts representing medical specialty organizations and associations. Professionals representing adjunct aspects of patient care, such as Risk Managers, Case Managers, and Insurers, were also included in this stage. The purpose of the external review was to provide additional sources of expertise in order to finalize draft guideline material developed by the Task Force.

Solicitation of Public Commentary

An active, open process to solicit public commentary on a year-round basis is in place in order to maximize community-based physician input and support. Contact with Accredited Providers is done through direct mailings and at Accreditation seminars.

Following the Advisory Panel comments and public commentary, final edits were made and the guideline adopted.

Post Task Force Questionnaire

Not done for this particular guideline.

## Evidence Supporting the Recommendations

### Type of Evidence Supporting the Recommendations

The type of evidence supporting the recommendations is not specifically stated.

Only randomized controlled trials or meta-analyses were used for evidence statements regarding treatment.

## Benefits/Harms of Implementing the Guideline Recommendations

### Potential Benefits

Optimal medical and functional outcomes for injured workers with chronic pain disorders

### Potential Harms

- Injuries, side effects, or infections from therapeutic injections

- Side effects and drug interactions from medications
- Complications from operative procedures
- Injury from device or component failure

See specific sections of the original guideline document for detailed descriptions of potential harms.

## Contraindications

### Contraindications

See specific sections of the original guideline document for contraindications.

## Qualifying Statements

### Qualifying Statements

- In order to properly utilize this document, the reader should view the document in its entirety for context.
- This document has been prepared by the Colorado Department of Labor and Employment, Division of Workers' Compensation (Division) and should be interpreted within the context of guidelines for physicians/providers treating individuals qualifying under Colorado's Workers' Compensation Act as injured workers with chronic pain.
- Although the primary purpose of this document is advisory and educational, these guidelines are enforceable under the Workers' Compensation Rules of Procedure, 7 CCR 1101-3. The Division recognizes that acceptable medical practice may include deviations from these guidelines, as individual cases dictate. Therefore, these guidelines are not relevant as evidence of a provider's legal standard of professional care.
- The Division provides procedures to implement medical treatment guidelines and to foster communication to resolve disputes among the provider, payer and patient through the Workers' Compensation Rules of Procedure. In lieu of more costly litigation, parties may wish to seek administrative dispute resolution services through the Division or the office of administrative courts.

## Implementation of the Guideline

### Description of Implementation Strategy

The principles summarized below are key to the intended implementation of all Division of Workers' Compensation guidelines and critical to the reader's application of the guidelines in the original guideline document.

1. Application of Guidelines. The Division provides procedures to implement medical treatment guidelines and to foster communication to resolve disputes among the provider, payer and patient through the Workers' Compensation Rules of Procedure. In lieu of more costly litigation, parties may wish to seek administrative dispute resolution services through the Division or the office of administrative courts.
2. Education. Education of the patient and family, as well as the employer, insurer, policy makers and the community should be the primary emphasis in the treatment of chronic pain injuries and disability. Currently, practitioners often think of education last, after medications, manual therapy, and surgery. Practitioners must develop and implement an effective strategy and skills to educate patients, employers, insurance systems, policy makers and the community as a whole. An education-based paradigm should always start with inexpensive communication providing reassuring information to the patient. More in-depth education currently exists within a treatment regime employing functional restorative and innovative programs of prevention and rehabilitation. No treatment plan is complete without addressing issues of individual and/or group patient education as a means of facilitating self-management of symptoms and prevention.
3. Treatment Parameter Duration. Time frames for specific interventions commence once treatments have been initiated, not on the date of injury. Obviously, duration will be impacted by patient compliance, as well as availability of services. Clinical judgment may substantiate the need to accelerate or decelerate the time frames discussed in the original guideline document.
4. Active Interventions. Active interventions emphasizing patient responsibility, such as therapeutic exercise and/or functional treatment, are generally emphasized over passive modalities, especially as treatment progresses. Generally, passive interventions are viewed as a means to

facilitate progress in an active rehabilitation program with concomitant attainment of objective functional gains.

5. Active Therapeutic Exercise Program. Goals should incorporate patient strength, endurance, flexibility, coordination, and education. This includes functional application in vocational or community settings.
6. Positive Patient Response. Positive results are defined primarily as functional gains that can be objectively measured. Objective functional gains include, but are not limited to: positional tolerances, range-of-motion, strength, endurance, activities of daily living, ability to function at work, cognition, psychological behavior, and efficiency/velocity measures that can be quantified. Subjective reports of pain and function should be considered and given relative weight when the pain has anatomic and physiologic correlation. Anatomic correlation must be based on objective findings.
7. Re-evaluation of Treatment Every 3 to 4 Weeks. If a given treatment or modality is not producing positive results within 3 to 4 weeks, the treatment should be either modified or discontinued. Reconsideration of diagnosis should also occur in the event of poor response to a seemingly rational intervention.
8. Surgical Interventions. Surgery should be contemplated within the context of expected functional outcome and not purely for the purpose of pain relief. The concept of "cure" with respect to surgical treatment by itself is generally a misnomer. All operative interventions must be based upon positive correlation of clinical findings, clinical course, and diagnostic tests. A comprehensive assimilation of these factors must lead to a specific diagnosis with positive identification of pathologic conditions.
9. Six-Month Time Frame. The prognosis drops precipitously for returning an injured worker to work once he/she has been temporarily totally disabled for more than six months. The emphasis within these guidelines is to move patients along a continuum of care and return-to-work within a six-month time frame, whenever possible. It is important to note that time frames may be less pertinent for injuries that do not involve work-time loss or are not occupationally related.
10. Return-to-Work. Return-to-work is therapeutic, assuming the work is not likely to aggravate the basic problem or increase long-term pain. The practitioner must provide specific written physical limitations and the patient should never be released to "sedentary" or "light duty." The following physical limitations should be considered and modified as recommended: lifting, pushing, pulling, crouching, walking, using stairs, overhead work, bending at the waist, awkward and/or sustained postures, tolerance for sitting or standing, hot and cold environments, data entry and other repetitive motion tasks, sustained grip, tool usage and vibration factors. Even if there is residual chronic pain, return-to-work is not necessarily contraindicated.  
The practitioner should consider all of the physical demands of the patient's job position before returning the patient to full duty and should request clarification of the patient's job duties. Clarification should be obtained from the employer or if necessary, including, but not limited to: a healthcare professional with experience in ergonomics, an occupational health nurse, occupational therapist, vocational rehabilitation specialist, or an industrial hygienist.
11. Delayed Recovery. By definition, patients with complex regional pain syndrome will fit into the category of delayed recovery. All of these patients should have a psychological or psychiatric evaluation, if not previously provided as well as interdisciplinary rehabilitation or vocational goal setting. It is essential to address all barriers to recovery which might include issues related to psychosocial, personality, employment, litigation, and compensation. The Division recognizes that 3% to 10% of all industrially injured patients will not recover within the timelines outlined in the original guideline document despite optimal care. Such individuals may require treatments beyond the limits discussed within the original guideline document, but such treatment will require clear documentation by the authorized treating practitioner focusing on objective functional gains afforded by further treatment and impact upon prognosis.
12. Guideline Recommendations and Inclusion of Medical Evidence. Guidelines are recommendations based on available evidence and/or consensus recommendations. When possible, guideline recommendations will note the level of evidence supporting the treatment recommendation. When interpreting medical evidence statements in the guideline, the following apply:  
Consensus means the opinion of experienced professionals based on general medical principles. Consensus recommendations are designated in the guideline as "generally well accepted," "generally accepted," "acceptable," or "well-established."

"Some" means the recommendation considered at least one adequate scientific study, which reported that a treatment was effective.

"Good" means the recommendation considered the availability of multiple adequate scientific studies or at least one relevant high-quality scientific study, which reported that a treatment was effective.

"Strong" means the recommendation considered the availability of multiple relevant and high quality scientific studies, which arrived at similar conclusions about the effectiveness of a treatment.

All recommendations in the guideline are considered to represent reasonable care in appropriately selected cases, regardless of the level of evidence attached to it. Those procedures considered inappropriate, unreasonable, or unnecessary are designated in the guideline as "not recommended."

13. Treatment of Preexisting Conditions. Conditions that preexisted the work injury/disease will need to be managed under two circumstances:

(a) A preexisting condition exacerbated by a work injury/disease should be treated until the patient has returned to their objectively verified prior level of functioning or maximum medical improvement (MMI); and (b) A preexisting condition not directly caused by a work injury/disease but which may prevent recovery from that injury should be treated until its objectively verified negative impact has been controlled. The focus of treatment should remain on the work injury/disease.

The guideline document should be interpreted within the parameters of these guideline principles that may lead to more optimal medical and functional outcomes for injured workers.

## Implementation Tools

Chart Documentation/Checklists/Forms

Foreign Language Translations

Resources

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

## Institute of Medicine (IOM) National Healthcare Quality Report Categories

### IOM Care Need

Getting Better

Living with Illness

### IOM Domain

Effectiveness

Patient-centeredness

## Identifying Information and Availability

### Bibliographic Source(s)

Colorado Division of Workers' Compensation. Chronic pain disorder medical treatment guidelines. Denver (CO): Colorado Division of Workers' Compensation; 2011 Dec 27. 110 p.

### Adaptation

Not applicable: The guideline was not adapted from another source.

### Date Released

2011 Dec 27

## Guideline Developer(s)

Colorado Division of Workers' Compensation - State/Local Government Agency [U.S.]

## Source(s) of Funding

Colorado Division of Workers' Compensation

## Guideline Committee

Not stated

## Composition of Group That Authored the Guideline

Not stated

## Financial Disclosures/Conflicts of Interest

Not stated

## Guideline Status

This is the current release of the guideline.

## Guideline Availability

Electronic copies: Available from the [Colorado Division of Workers' Compensation Web site](#) .

## Availability of Companion Documents

The following are available:

- Chronic pain and complex regional pain syndrome update 2011. Search terms and general search strategy. Denver (CO): Colorado Division of Workers' Compensation. 2011. 2 p. Electronic copies: Available from the [Colorado Division of Workers' Compensation Web site](#) .
- Chronic pain and complex regional pain syndrome update 2011. Bibliography. Denver (CO): Colorado Division of Workers' Compensation. 2011. 46 p. Electronic copies: Available from the Colorado [Division of Workers' Compensation Web site](#) .

In addition, the following Desk Reference tools are available from the [Colorado Division of Workers' Compensation Web site](#)

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- Pain diagram
- Functional assessment for chronic pain (available in English and Spanish)
- Guidelines for prescribing controlled substances, including a sample patient contract in English and Spanish
- Psychological tests commonly used in the assessment of chronic pain
- Guidance for epidural spinal injections
- Blocks for sympathetically mediated pain
- Functional capacity evaluation explanation and consent form
- Task force supplement for functional capacity evaluation

## Patient Resources

None available

## NGC Status

This NGC summary was completed by ECRI Institute on November 27, 2012. The information was verified by the guideline developer on December 28, 2012. This summary was updated by ECRI Institute on October 28, 2013 following the U.S. Food and Drug Administration advisory on Acetaminophen. This summary was updated by ECRI Institute on July 3, 2014 following the U.S. Food and Drug Administration advisory on Epidural Corticosteroid Injection. This summary was updated by ECRI Institute on September 18, 2015 following the U.S. Food and Drug Administration advisory on non-aspirin nonsteroidal anti-inflammatory drugs (NSAIDs). This summary was updated by ECRI Institute on June 2, 2016 following the U.S. Food and Drug Administration advisory on Opioid pain medicines.

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